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IMAGERY
ANALYSIS
DIVISION

PIR

PHOTOGRAPHIC INTELLIGENCE REPORT

NAN-CHING CHEMICAL FERTILIZER PLANT

NAN-CHING, CHINA

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Declass Review by NIMA/DOD

GROUP 1
Excluded from automatic
downgrading and declassification

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DATE AUGUST 1966

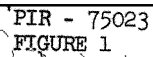
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PIR 75023

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NAN-CHING CHEMICAL FERTILIZER PLANT
NAN-CHING, CHINA

A large chemical fertilizer plant is located on the north bank of the Chang River about ten nm north of Nan-ching (Nan-king) and on the opposite side of the river from the Nan-ching wharf area, at approximately 32 13N - 118 45E. The plant is basically rectangular in shape with dimensions of approximately 8,300 feet by 2,500 feet. The plant is served by a spur of the Nan-ching to Chu-hsien railroad. It is also served by road and water.

All available photographic coverage during the period, [] was examined with emphasis on the identification of major production facilities and developments within the installation. The limits of the plant and the various processing and support facilities are shown on Figure 6.

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The annotations on Figure 6 correspond to the following discussion of facilities:

AREA A - Phosphate fertilizer manufacturing

The phosphate ore is brought in by rail (1). At the unloading platform (2) it is transferred to the warehouse (3). The phosphate rock is probably treated in the crushing building (4) and then it goes to the mixing and den building (5). It is mixed with sulfuric acid in the southeast section of this building and allowed to cure in the northwest section. After curing, it is processed, possibly mixed with potassium fertilizers, and stored in the large warehouse (6). Building (7) is probably the packaging and shipping section for the finished fertilizer, which is shipped by water (17) and rail (18).

Waste material from the phosphate fertilizer plant is sent to the open storage area (8). The water treatment facility (9), which is adjacent to the waste storage area, and the two medium size administration buildings (10), are located on the road leading into the plant. This road has a control point (11). The maintenance and storage buildings (12) are adjacent to the phosphate warehouses.

Elemental phosphorus and phosphorus compounds are probably made in the group of small buildings (13) in the southwest corner of the phosphate plant. Two small unidentified buildings (14), in this same area, are surrounded by a security wall. Phosphoric acid is probably made from

TOP SECRET

25X1

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PIR 75023

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elemental phosphorus in the acid unit (15), and phosphorus compounds may be synthesized in the large building (16).

The ten buildings in the southern section of the plant include warehouses, possibly for storage of phosphorus compounds which may be shipped by road, as well as shops and service buildings. The small walled section in the northern part of the plant is probably a laboratory and control unit for the phosphate fertilizer plant.

The phosphate fertilizer plant contains a contact sulfuric acid unit which furnishes acid to the mixing building (5). Pyrites are brought in by water to the receiving and processing building (19). The processed ore then goes to the roasting building (21) where sulphur dioxide is generated for the sulfuric acid unit (20). The acid is stored in the tank farm (23) prior to use or shipment. The small buildings (22) are probably control and service buildings.

AREA B - The nitrogen fertilizer plant.

In the area between the phosphate and nitrogen fertilizer plants, an unidentified processing unit (24) with approximately five associated buildings (25) is located. Considerable land for open storage (26) and future expansion is available in this area.

Another probable contact sulfuric acid plant (28) is located within the nitrogen fertilizer plant. The pyrites are received and processed in the large building (27). The acid produced is used to produce ammonium sulfate (29), which is stored in warehouse (30). Some of the sulfuric acid is stored in the tank farm.

In the unloading area (31) an overhead traveling crane is used to unload coke/coal which is used in the gas generating plant (33) and steam plant (32). There are three gas holders possibly for raw and purified gas. From the gas generating plant, the gas goes to the purification units and finally to the liquid air and ammonia synthesis buildings (35). Ammonia is synthesized from the hydrogen and nitrogen. Cooling towers are located at (36).

Some of the ammonia is used as a raw material at the nitric acid plant (37) and in the possible ammonium nitrate facilities (38 and 39).

A possible catalyst production area (40) consists of numerous small buildings.

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Carbon dioxide and ammonia are converted to urea in the probable synthesis building (45) and processing buildings (41-44).

The buildings in (46) are workshops with probably a few warehouses. A large water treatment plant (47) supplies water to the plant.

Positive identification in Area B is difficult as the plant layout is complicated and the structures are closely spaced.

AREA C - The location of the Chemical Engineering College of Nan-ching.

AREA D - Coal is brought in by railroad and unloaded in the open storage (51). From here it is sent to the coal preparation building (50) and finally to the thermal power plant (49).

AREA E - consists of numerous buildings for employee housing.

LEVEL OF ACTIVITY

[redacted] there was considerable construction in both the phosphate fertilizer plant and the nitrogen fertilizer plant. During this period the unloading platform (2) was constructed as well as the warehouse (3) and the addition adjacent to the crushing building (4).

The two large warehouse and shipping buildings in the southern section of the phosphate plant were also constructed. In area B, a processing building (24) was also built. In the phosphate plant, there appears to be some construction in the early stages southwest of the sulfuric acid plant.

In the urea section of the plant, there are five new buildings, four of which are unidentified and a processing building (42). The gas generating unit (33) and a third gas holder were constructed in the ammonia section.

During the period covered by this study, a general increase in rail cars and river traffic serving this fertilizer plant was noted.

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KEY

AREA A - Phosphate Fertilizer Plant

1. Phosphate rock receiving area
2. Phosphate rock unloading platform
3. Phosphate rock storage
4. Crushing and processing building
5. Mixing and den building; warehouse
6. Warehouse and probable processing building
7. Warehouse and shipping building
8. Waste products
9. Water treatment area
10. Administration area
11. Control point
12. Maintenance and storage building
13. Phosphorus processing section
14. Unidentified area - 2 buildings
15. Possible phosphoric acid plant
16. Possible processing building for phosphorus compounds
17. Water shipping area
18. Rail lines serving plant
19. Pyrite ore receiving and processing building
20. Sulfuric acid plant
21. Roasting building
22. Probable control and plant service buildings
23. Sulfuric acid tank farm

AREA B - Nitrogen Fertilizer Plant

24. Large unidentified processing building
25. Buildings associated with 24
26. Open storage area
27. Pyrite ore receiving and processing
28. Sulfuric acid plant
29. Ammonium sulfate plant
30. Ammonium sulfate warehouse
31. Coal/coke unloading area with overhead traveling crane
32. Steam plant
33. Gas generating plant
34. Three gasholders
35. Liquid air and ammonia synthesis building
36. Cooling towers

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KEY

AREA B - Con't

- 37. Nitric acid absorbers
- 38-39. Possible ammonium nitrate synthesis
- 40. Possible catalyst area
- 41-44. Processing buildings for urea
- 45. Urea synthesis building
- 46. Workshop area
- 47. Water treatment area

AREA C - Chemical Engineering College of Nan-ching

AREA D - Thermal Power Plant

- 48. Water treatment plant
- 49. Thermal Power Plant
- 50. Coal preparation building
- 51. Open coal storage

AREA E - Employee Housing

COLOR LEGEND FOR FERTILIZER PLANT

COLOR

Red
Yellow
Green
White
Green

SECTION

Phosphate plant
Sulfuric acid plants
Chemical Engineering College
Ammonium plant
Power plant

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REFERENCES

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MAPS AND CHARTS

General Locator Map, China - 26906, 10-59 (UNCLASSIFIED)

AMS Series L500, NI50-16 Nan-ching (Nanking), China, Edition
1-AMS (UNCLASSIFIED)

REQUIREMENT

C-RR5-83,036

CIA/IAD PROJECT

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FIGURE 3

CHEMICAL FERTILIZER PLANT
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32 13N - 118 45E

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FIGURE 4

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CHEMICAL FERTILIZER PLANT
NAN-CHING, CHINA
32 13N - 118 45E

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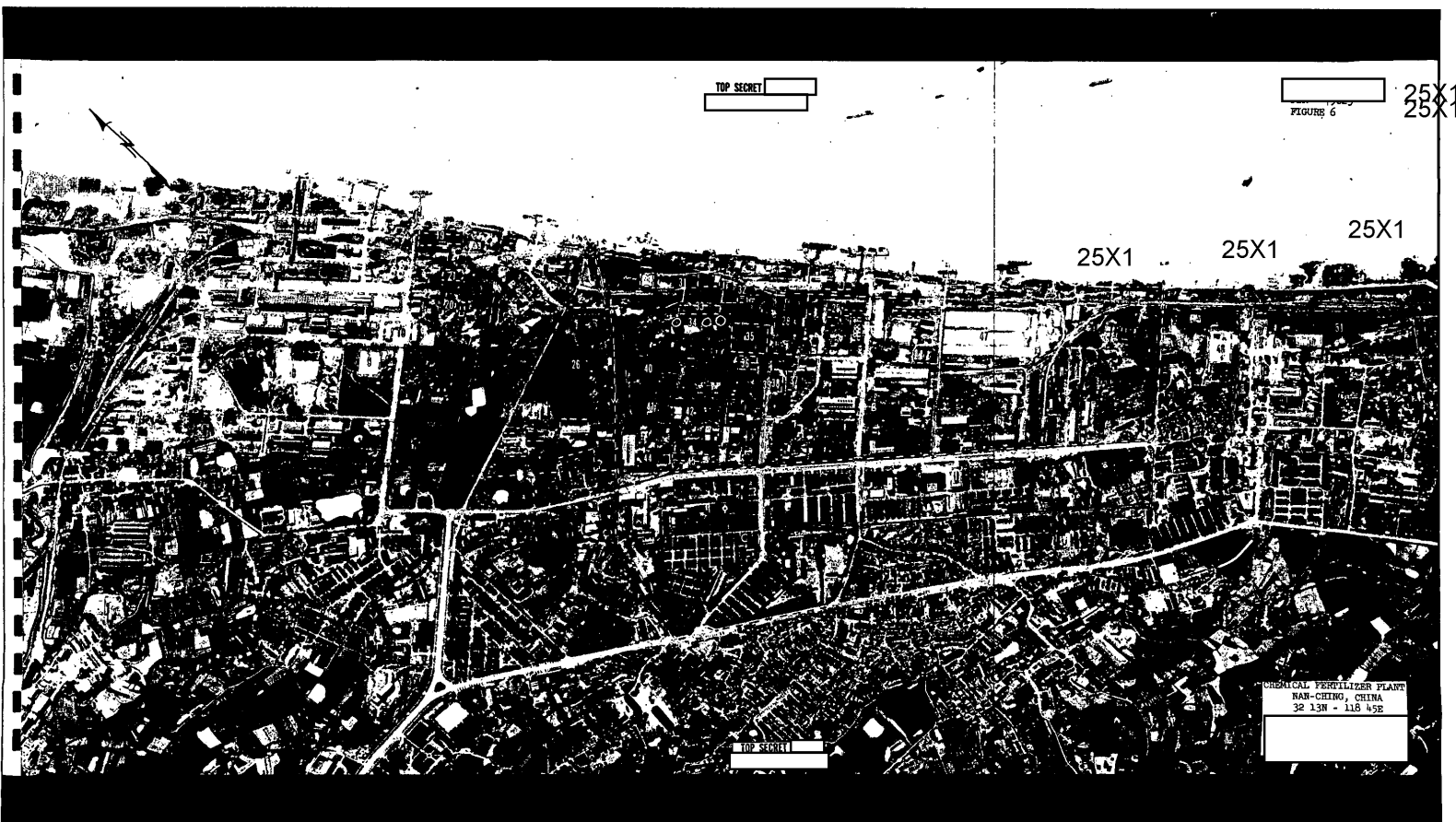
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FIGURE 5

CHEMICAL FERTILIZER PLANT
NAN-CHING, CHINA
32 13N - 118 45E

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